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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,642	03/07/2007	Alan Smith	713-1422	8736

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EXAMINER	
ZOLLINGER, NATHAN C	
ART UNIT	PAPER NUMBER
3746	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,642	SMITH, ALAN	
	Examiner	Art Unit	
	NATHAN ZOLLINGER	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 June 2006* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060619 and 20070307 and 20080212*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because of usage of the word "said." Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 12-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. (US 5,195,879) in view of ordinary skill in the art.

Claim 12: Reese discloses a pump characterized by comprising first and second pistons (20, 22) reciprocable rectilinearly in respective first and second cylinders (16,18), said first and second pistons being moved relative to their respective cylinders by operation of an electric motor (col. 16, line 25) the rotary output shaft of which is coupled to said first and second pistons by means including a constant velocity cam (10) and cam follower mechanism (66, 68) converting rotary motion of the output shaft into reciprocatory motion of said first and second pistons 180° out of phase with one another. Reese discloses the claimed invention except for specifying that the motor is an A.C. motor. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an A.C. motor since it was known in the art that such motors can be used to power piston pumps.

Claim 13: Reese also discloses a pump characterized in that said first and second pistons are axially aligned (Fig. 1).

Claim 14: Reese also discloses a pump characterized in that said first and second axially aligned pistons cooperate with said constant velocity cam through the intermediary of respective cam followers engaging said constant velocity cam at opposite ends of a diameter of the circle of rotation of said cam (Fig. 1).

Claim 15: Reese also discloses a pump characterized in that said cam followers are roller cam followers (66, 68).

Claim 16: Reese also discloses a pump characterized in that said first and second cam followers are spring urged (28, 30) into engagement with the cam surface of said constant velocity cam.

Claim 17: Reese also discloses a pump characterized in that said first and second cam followers are simultaneously urged to engage the cam surface of said constant velocity cam by compression springs (28, 30).

Claim 21: Reese also discloses a pump characterized in that a reduction gearbox (48) is interposed between the output shaft of the motor and said constant velocity cam (col. 16, lines 24-36).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. (US 5,195,879) in view of Bowen (US 3,816,029).

Claim 18: Reese teaches the limitations of claim 12, discussed previously. However, Reese does not teach first and second cam followers interconnected by tension spring means simultaneously urging both cam followers to engage the cam surface of said constant velocity cam. Bowen teaches a tension spring means (133). It would be obvious to employ a spring means as taught by Bowen into the pump of Reese in order to urge the followers into contact with the cam (col. 5, lines 12-19).

Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. (US 5,195,879) in view of Yarger (US 3,150,603).

Claim 19: Reese teaches the limitations of claim 12, discussed previously. However, Reese does not teach a pump characterized by including third and fourth pistons, cylinders, or a second cam. Yarger teaches a pump with third and fourth pistons (15-18), cylinders (11-14), or a second cam (20, 20') which operates in accordance with Applicants limitations (col. 2, lines 21-31, 56-62; col. 3, lines 20-35). It would be obvious to employ additional pistons as taught by Yarger into the pump of Reese in order to increase fluid output.

Claim 20: Reese and Yarger teach the limitations of claim 19, discussed previously. However, Reese does not teach a pump characterized in that liquid discharged from said first, second, third and fourth cylinders is supplied to a common pressure loop. Yarger teaches liquid disclose from all the cylinders is supplied to a common pressure loop (Figs. 1-2).

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. (US 5,195,879) in view of Kettering et al. (US 1,512,029).

Claim 22: Reese teaches the limitations of claim 12, discussed previously. However, Reese does not teach a flywheel is incorporated in the drive transmission. Kettering teaches a pump which utilizes a flywheel (39). It would be obvious to employ a flywheel as taught by Kettering into the pump of Reese so that "energy may be stored for steadying the action of the pump" (page 2, lines 5-8).

Claim 23-28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. (US 5,195,879) in view of Krohn et al. (US 4,009,971).

Claim 23: Reese teaches the limitations of claim 12, discussed previously. However, Reese does not teach a pump wherein each piston is arranged to have a stroke of 30 to 80mm. Krohn teaches a pump which has a stroke of 1.5 inches (col. 5, lines 10-13). It would be obvious to employ the stroke length as taught by Krohn into the pump of Reese in order to adapt the pump for a narrow space constraint in which the piston is allowed to oscillate.

Claim 24: Reese and Krohn teach the limitations of claim 23, discussed previously. Reese also discloses a piston with a diameter of 1 inch (col. 16, line 39). Reese and Krohn teach the claimed invention except for a piston having a diameter between 60 and 150 mm. It would have been obvious matter of design choice to increase the size of the piston diameter as taught by Reese, since such a modification would have involved a mere change in the size of a component. A change is size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237, (CCPA 1955).

Claims 25-28: Reese discloses a pump characterized by comprising first and second pistons (20, 22) in respective first and second cylinders (16,18), said first and second pistons being moved relative to their respective cylinders by operation of a electric motor (col. 16, line 25) the rotary output shaft of which is coupled to said first and second pistons by means including a constant velocity cam (10) and cam follower mechanism (66, 68) converting rotary motion of the output shaft into reciprocatory motion of said first and second pistons 180° out of phase with one another. However, Reese does not specify that the motor is an A.C. motor. It would have been obvious to

one having ordinary skill in the art at the time the invention was made to use an A.C. motor since it was known in the art that such motors can be used to power piston pumps. Reese also does not disclose that the pistons reciprocate through a stroke of between 30mm and 80mm. Krohn teaches a pump which has a stroke of 1.5 inches (col. 5, lines 10-13). It would be obvious to employ the stroke length as taught by Krohn into the pump of Reese in order to increase the output of the pump. Reese also discloses a piston with a diameter of 1 inch (col. 16, line 39). Reese and Krohn teach the claimed invention except for a piston having a diameter between 60 and 150 mm. It would have been obvious matter of design choice to increase the size of the piston diameter as taught by Reese, since such a modification would have involved a mere change in the size of a component. A change is size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237, (CCPA 1955).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN ZOLLINGER whose telephone number is 571-270-7815. The examiner can normally be reached on Monday - Thursday, 9 a.m. - 4 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Z./
Examiner, Art Unit 3746

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746